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ABSTRACT

Based on an extensive look at the trends and directions in San Francisco's New Media industry, this paper examines and evaluates the program at City College and devises recommendations for improving this program. Information was gathered from various industry reports published in San Francisco, interviewed representatives of the New Media industry, and hosted the New Media Education Summit, which consisted of a panel of key industry leaders observed by City College faculty. This document reports its evaluation of the New Media industry in San Francisco, summarizes the findings of the interviews and the Summit, and presents programmatic and curricular recommendations for City College. The recommendations are organized into five categories including (1) digital literacy, (2) certificate programs, (3) skills upgrades for industry professionals, (4) infusion of new media across the curriculum, and (5) institutional organization. Also included is a glossary of technical terms and information used in this report, as well as an overview of current new media programs at CCSF. Appendices include the New Media Education Summit attendees and the current Multimedia Studies certificates available at City College and the course requirements and electives for these programs. (JL)

THE NEW MEDIA INDUSTRY IN SAN FRANCISCO

IMPLICATIONS FOR CITY COLLEGE

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City College of San Francisco
Office of Research, Planning and Grants

June 1999

THE NEW MEDIA INDUSTRY IN SAN FRANCISCO

IMPLICATIONS FOR CITY COLLEGE

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INTRODUCTION

Beginning in the spring semester of 1999 and culminating with the New Media Education Summit held on May 13th, 1999 investigators from City College of San Francisco examined San Francisco's Interactive Digital Media industry and its implications for education at City College. At the request of Chancellor Phillip R. Day, Jr., Suzanne Korey, interim Dean of Liberal Arts, Robert Gabriner, Director of Research, Planning & Grants, and David Hyde, a researcher in the Office of Research, Planning & Grants, formed a CCSF "New Media Research Group" to study this vital industry. John Avakian, Director of the Multimedia/Entertainment Initiative for Ed>Net (the Economic Development Network of California's Community Colleges) consulted with this group, providing invaluable resources, contacts and guidance in this project. The group undertook a six month inquiry to look at the trends and directions in San Francisco's New Media industry, to examine and evaluate the program at City College, and to devise recommendations for improving this program. The group gathered information from various industry reports published in San Francisco, interviews with representatives of the New Media industry, and finally the New Media Education Summit consisting of a panel of 17 key industry leaders observed by City College faculty. This report evaluates the New Media industry in San Francisco, summarizes the findings of the interviews and the Summit, and presents programmatic and curricular recommendations for City College.

DEFINITIONS

Because of the highly technological nature of some of the terms and information used in this report and this industry, a glossary of key terms is provided here.

Bandwidth • The rate of transfer of digital data over a network or the internet to the user.

CDROM • A compact disc storing games, entertainment or educational programs often utilizing New Media technology in it's presentation.

Digital Media • See New Media.

E-commerce • Electronic commerce. Sales and other business transactions occurring on the World Wide Web.

E-mail • Electronic mail. A communications standard format for messaging over the internet.

Interactive Digital Media • See New Media.

ISP • Internet Service Provider. A company that provides personal or business access to the internet via a modem or other connection.

Linux • A new, open source operating system being developed over the internet.

Multimedia • See New Media.

New Media • Production combining multiple mediums, such as text, video and audio. The production is generally digital and interactive in nature. For purposes of this report, this term is synonymous with "Multimedia," "Digital Media," and "Interactive Digital Media".

Open Source • Free and constantly evolving software developed by user groups by sharing code and other resources over the internet.

Set Top Boxes • Small, inexpensive, single function computers that allow users to access the internet using a standard television.

SkillsNet • An internet service matching New Media job seekers, educational institutions and employment as well as providing information on the latest skills needed to work in the industry.

WWW • World Wide Web. A large graphical branch of the internet and the most frequent delivery format for New Media.

NEW MEDIA IN SAN FRANCISCO

The New Media industry in San Francisco is a dynamic, fast paced and growing field. In a broad sense, it may include such areas as World Wide Web production, e-commerce, CD-ROM production, video game production, electronic graphic design, audio, and video production. Because most current New Media successes and services generally support this medium, this report focuses on those jobs and the industry associated with the World Wide Web.

San Francisco is generally considered the home of this industry. The proximity of the information technology industry in Silicon Valley and the traditional arts and design industries in San Francisco has placed San Francisco strategically to be the key location as the New Media industry emerges. The South of Market region in San Francisco has been given the nickname "Multimedia Gulch" reflecting the concentration of the industry in that area.

Because of the constant changes in the industry, and relatively new and evolving job classifications, exact data on how many people are employed in New Media in San Francisco is difficult to determine. While estimates of current San Francisco New Media employment range from 20,000 to over 50,000, one thing is clear—it is a rapidly expanding industry. In the past four years employment has increased by over 52%, *more rapidly than any other industry in San Francisco* (San Francisco Partnership, 1999). While no specific federal occupational code currently exists for New Media workers, of occupations coded for federal statistics, computer programmers, many of whom will be employed in New Media, will see the greatest absolute growth and percentage growth in SF between 1995 and 2005 (Employment Development Department, 1999).

In 1998, the City of San Francisco hosted a "Multimedia Summit" including hundreds of participants from throughout the industry and leaders from Washington, D.C. The message of this summit was clear. New Media is an economic priority in San Francisco. Over 400 businesses in The City currently classify themselves as part of this industry and new firms are popping up almost daily (MDG.org, 1998). In 1997, the industry accounted for over \$2.2 billion in revenues in San Francisco alone (Bay Area Multimedia Partnership, 1999). While sales and services of local New Media firms are primarily within the Bay Area, they are rapidly expanding to design content and create tools for California and increasingly the world (San Francisco Partnership, 1999).

A number of initiatives in San Francisco are currently addressing this industry and show its crucial importance to economic growth in San Francisco. An incubation center offering low rents and a high tech infrastructure is being developed at 123 Townsend Street in conjunction with the San Francisco Partnership, a public/private economic development group. A number of community based organizations such as the Bay Area Video Coalition (BAVC), Media Link, Digital Mission, and OpNet provide training in multimedia technology. Others such as SkillsNet and Gulch.com are attempting to connect job seekers with industry employment. Finally, industry conglomerates, such as the Bay Area Multimedia Partnership are working to foster industry growth around The City.

The New Media industry can best be described as multifaceted, project-oriented and dynamic. Services associated with this industry range from software designers creating tools for use in the industry to graphic designers designing web pages to Internet Service Providers (ISPs) who provide the technological infrastructure to host web pages. Companies may take the form of large established firms that focus on one or more of these services, small firms that exist for just one or a few specific projects, or individuals who contract out their labor to various businesses for specific projects. Further, businesses not primarily affiliated with New Media are becoming a significant source of industry employment as many large companies move their web design projects in-house.

Workers in this industry tend to be flexible, moving between different companies, projects, and skills. They need a combination of skills that includes technological proficiency with software and hardware tools, business and communications skills, interpersonal skills and artistic talent.

CURRENT NEW MEDIA PROGRAMS AT CCSF

Before recommendations can be made, it is also useful to examine current New Media programs at City College. This section details the Multimedia Studies program (part of the Interdisciplinary Studies department) at CCSF.

The Multimedia Studies program at City College of San Francisco prepares students for entry level employment in the New Media industry. Created as a cooperative effort by many disciplines, the program offers instruction in the design, development, tools, techniques and production of computer-based interactive multimedia. Teamwork is emphasized, reflecting the interdisciplinary work environment of the multimedia industry. More than 200 students attend multimedia courses at City College each semester. Courses cost just \$11 per unit, making this program one of the least expensive in the City.

City College offers two-year, forty-unit Certificates of Completion in Multimedia Studies in four concentrations including:

- Design and Graphics
- Image and Sound
- Programming
- Performance Arts.

More information on these programs can be found in Appendix B.

Students in the Multimedia Studies program at City College have access to a full range of academic services including academic and personal counseling, financial aid, and job placement. Additionally, multimedia students at City College may take classes in other disciplines such as English, mathematics, art or business allowing them to receive well rounded educations. Students at City College express satisfaction with the mixture of theory and practice, the merging of art and technology, and the faculty dedication the program offers.

THE NEW MEDIA EDUCATION SUMMIT

In order to further assess the shape of the San Francisco New Media Industry, the trends within that industry and the role of City College, CCSF hosted a *New Media Education Summit* on May 13th, 1999. The summit involved a group of panelists—key leaders from local multimedia firms, businesses, organizations and professionals—that discussed a number of questions the college provided them concerning the industry. The questions included:

- How will the economic profile (number of employees, annual revenues, emerging markets) of the San Francisco New Media industry change over the next decade?
- Will the New Media industry continue to be characterized by many small companies or will consolidation occur? Will dedicated Interactive Digital Media firms dominate the industry or will other types of businesses bring New Media production “in-house?” How will different types of New Media firms specialize?
- Discuss the growth of e-commerce and its impact on the local economy.
- How will New Media professionals work in the future? As independent contractors or in firms? Alone or in teams? At an office or at home?
- Discuss the types of positions and titles that will be available to new job seekers in the New Media industry.
- What professional and technological skills will be needed by New Media professionals in the future? Discuss trends in software and technology used by New Media professionals. What other skills and attributes do New Media businesses look for when hiring employees?
- What obstacles exist in connecting qualified workers with appropriate jobs?

In addition, panelists raised issues they deemed important and made suggestions for City College program and curricular offerings. What follows is a summary of their comments grouped into categories concerning I) industry issues and trends, II) employment and professional skills and III) suggestions for City College. The bullets on the next three pages are summaries and highlights of what panelists said at the summit.

INDUSTRY ISSUES AND TRENDS (AS NOTED BY SUMMIT PANELISTS)

- The industry is characterized by a lack of structure. Even the name "New Media" is constantly changing and in dispute.
- Companies tend to be nonhierarchical, especially in their artistic and technological departments. As the industry matures, organization is increasing, and management is becoming more hierarchical and traditional in structure.
- Products are frequently produced by multi-skilled and collaborative efforts using an interdisciplinary approach. Companies involve business, computer science, graphics, project management and production in an entrepreneurial environment.
- Smaller companies tend to be comprised of more generally skilled workers relative to larger companies which hire more specialists.
- The new media industry is primarily a communications industry and is not fully understood by its potential customers.
- The industry will continue to grow rapidly with many new firms arising.
- Bandwidth will increase, thus facilitating the ability to deliver even more complex media and content via the internet.
- Large companies will begin to take root and a more stable environment will develop.
- High rents may have a negative impact on the growth of the industry in San Francisco.
- Technologies will converge creating fewer platforms and more integrated work tools.
- E-commerce will see exponential growth.
- Database design and maintenance, information architecture and information retrieval will be of vital importance.
- Many available jobs are in the nonprofit sector and in non-multimedia businesses that want to bring their web design projects in-house.
- Digital TV and set top boxes will allow even larger numbers of people to access New Media.
- Linux and other open source software will become more prevalent.

EMPLOYMENT AND PROFESSIONAL SKILLS (AS NOTED BY SUMMIT PANELISTS)

- Employment in New Media can be grouped into four basic job categories: Creative, Management, Technology and Entrepreneurial (combining creative, technology and management skills).
- Job specialization is increasing, especially in large companies.
- The panelists felt that human skills (self knowledge, awareness for decision making) were found to be too often lacking in the younger workforce.
- Skills in New Media include a number of business, interpersonal, artistic and technological skills. Technological skills, while important, are in very rapid change, and therefore hard to teach at an educational institution. A working knowledge of general technological principals, and the ability to learn new software and hardware was viewed as most important by the panelists. Desirable skills include:
 - Business and management skills
 - Organizational skills
 - Ability to analyze requirements
 - Project management
 - Interview skills
 - Discursive, persuasive and technical writing
 - Learning skills
 - Ability to deal with rapid obsolescence of information
 - Ability to work in a team
 - Art/design fundamentals
 - Multi-media design skills
 - Ability to develop and maintain networks
 - Animation and programming skills
 - Data base administration
 - A thorough understanding of e-mail and the internet
- Skills and experience are more important than degrees.
- Job seekers are most aided by connections in the industry and an elaborate portfolio.
- Workers must be able to change, learn and grow rapidly.

SUGGESTIONS FOR CITY COLLEGE (AS NOTED BY SUMMIT PANELISTS)

- City College instructional programs should develop internships and mentorships with industry. CCSF should coordinate internships with non-multimedia businesses as well.
- CCSF must collaborate with industry organizations such as SkillsNet to develop and evaluate programs in order to keep pace with new technologies and industry trends.
- CCSF should offer short-term programs that allow professionals to upgrade skills or obtain academic credentials. Credit should be given for skills developed individually so that experienced students can receive advanced standing and obtain credentials more readily.
- CCSF should offer a basic "new media" class as part of a core college curriculum. This is especially important in fields such as art, business, architecture and writing wherein New Media will play an ever increasing role.
- City College should offer a capstone, interdisciplinary New Media course in which students from different disciplines (technology, art, business) work together on a major project to be used as part of their portfolio.
- CCSF should design programs that incubate the industry by encouraging entrepreneurial students.
- Programs should be flexible and interdisciplinary, with curricula constantly being evaluated and revised.
- CCSF must infuse New Media throughout the curriculum as a basic skill, a learning tool, and a universal means of communication.
- CCSF must market itself and its graduates more aggressively and attractively to the New Media community.
- Multimedia graduates should have an interactive resume and an online portfolio.
- Multimedia programs should teach sales techniques, legal issues of contract labor, interview skills and entrepreneurial skills.
- Programs should address "life long learning" as it relates to New Media professionals.
- CCSF should provide industry pathways for the less advantaged.
- CCSF should embrace online education. This involves New Media as both a method of delivery and a subject for course offerings.

RECOMMENDATIONS

Based on the preceding information and suggestions, the following sections assess needs and outline general recommendations for New Media education at City College. The recommendations are organized into five categories including:

- 1. Digital Literacy**
- 2. Certificate Programs**
- 3. Skills Upgrades for Industry Professionals**
- 4. Infusion of New Media Across the Curriculum**
- 5. Institutional Organization**

DIGITAL LITERACY

City College should establish digital literacy and familiarity with New Media as part of the college core curriculum.

To be fully successful in the 21st century, all citizens will need a basic understanding of computers and the internet. Almost all employment will require some basic understanding of how to navigate the World Wide Web, search online for information and communicate via e-mail. Digital literacy—basic computing and internet skills—have become fundamental work tools that students must possess in order to succeed in both the work world and their other educational endeavors. A 1998 study by the Alliance for Community College Innovation found that 77% of college students and parents believe internet use improves grades, 69% had seen grades improve with use and 50% said it was essential for education. Much as students in the past required basic writing, reading and mathematics skills to succeed in almost any field, so workers in the future will also need to understand technology, computers and the internet. The same study found that there are also giant disparities between ethnicities and economic classes in levels of internet access and knowledge. By providing internet access and training to its diverse student body, City College can help to alleviate this disparity.

Programs such as Digital Mission are already attempting to serve this need. The College also has a few credit and noncredit offerings in basic computer use at multiple campuses. While these are useful first steps in meeting the need for digital literacy, much room for expansion exists. Specifically, CCSF should:

- Develop strategic alliances with community organizations such as Digital Mission to provide instruction in computer and internet skills to San Francisco residents.
- Develop pathways for interested students leading from these introductory courses to more advanced courses focusing in New Media at City College, the Bay Area Video Coalition or San Francisco State University.
- Include digital literacy in College plans outlining core curriculum for students.

CERTIFICATE PROGRAMS

City College should develop flexible New Media instructional programs for diverse student needs.

A number of people, including those currently enrolled in the Multimedia Studies program at City College, will desire a traditional college education with a focus in New Media. A certificate program must be interdisciplinary, flexible and closely aligned with this fast changing industry. This investigation revealed that the Multimedia studies program at CCSF is already quite successful in filling these needs. That said, a number of specific recommendations for certificate programs exist. Certificate programs should:

- Provide the most up-to-date technical training available combined with a foundation of traditional liberal arts education.
- Form alliances with the New Media industry to offer internships and keep abreast of industry trends and technological developments.
- Undergo constant program and curriculum evaluation to ensure that the newest techniques are being offered.
- Secure articulation agreements with CSU and UC that will help guarantee students further access to New Media education should they wish to continue their studies.
- Develop short term and accelerated programs that offer rapid entry into New Media employment for students who wish to forgo a classical education.
- Develop entrepreneurial programs, including mentorships, for New Media students. Developing a tight network of linkages to the independent contractor community would help to facilitate this.

SKILLS UPGRADES FOR INDUSTRY PROFESSIONALS

City College should develop a program to train industry professionals in the latest technologies.

A large number of potential City College students exist inside the New Media industry itself. To date, City College has done little to provide the type of high-tech, up-to-date and flexible training these industry professionals require. City College should:

- Partner with industry to offer cutting edge courses in the latest software and hardware taught by industry professionals serving as adjunct faculty.
- Offer noncredit courses for those seeking skills but unconcerned with college credentials or credit.
- Offer contract education courses for large firms seeking employee development.
- Offer instruction at a convenient location for those who work in "Multimedia Gulch." Instruction might be offered at the CCSF Downtown campus, the SFSU Multimedia Extension Center or the New Media Center at 123 Townsend in conjunction with the San Francisco Partnership.

INFUSION OF NEW MEDIA ACROSS THE CURRICULUM

City College should infuse New Media skills, techniques and technologies throughout the College curriculum.

Perhaps the most common theme revealed by the New Media Education Summit, as well as the interviews and research done prior to the Summit, was the importance of infusing New Media throughout the academic curriculum. Because of its use as a communications and sales tool, New Media will be helpful for writers, architects, entrepreneurs, artists and others. Learning New Media as it applies to their specific discipline will improve the educational process, by both allowing students to learn the technologies they are most likely to encounter, and allowing them to learn about their discipline in the form in which they will have it presented to them in the next century's workplace.

Some infusion of New Media will occur naturally as professors become more familiar with the new technology. The growth of New Media throughout our culture will increase instructors' exposure to this technology in their personal, academic and business lives, and they will likely apply some of this new knowledge in their classrooms. City College can also help facilitate this infusion in a number of ways. CCSF should:

- Develop courses within various academic disciplines that combine multimedia and that discipline (Ecommerce classes in the Business department, CAD classes in the Architecture department, etc.).
- Encourage instructors in all disciplines to utilize New Media tools in their courses. This would foster new teaching techniques and help to teach students the use of new technologies in the process.
- Provide professional development in New Media for instructors.

INSTITUTIONAL ORGANIZATION

City College should establish a Digital Media Studies Center

The following section attempts to address institutional factors at City College that affect the success of New Media initiatives. This section makes specific programmatic recommendations for New Media education at CCSF. Specifically, City College should:

Create a new initiative, separate from Interdisciplinary Studies, for New Media. This might take the form of a new interdisciplinary department or an "institute" or "center." Creating New Media as an independent entity with strong leadership and a unique and reliable funding stream will help ensure it has adequate resources to address the aforementioned needs.

- Change the name. Multimedia is an outdated term and provides the impression to industry that City College has outdated programs. Suggestions include the Digital Media Center or the Digital Media Institute.
- Align City College offerings with industry needs. Constant evaluation of curricula, bringing industry professionals in to teach, sending professors to industry to learn new technology, becoming active in regional and local New Media initiatives and grants will help ensure that the College has the necessary information about this industry for instruction and access to the industry for graduates.
- Upgrade technology. All multimedia classrooms must have internet access, adequate hardware and appropriate software.
- Advertise. Any New Media programs at City College would do well to aggressively promote their offerings in the New Media community. CCSF should strive to make its reputation for New Media instruction top notch among the industry and other local training providers.
- Expand night class offerings. Courses offered at night could be taken by industry professionals and others who must work during the day.

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APPENDIX A • NEW MEDIA EDUCATION SUMMIT ATTENDEES

INTRODUCTION			
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Ms.	Brady	Bevis	Bay Area Multimedia Partnership
Mr.	David	Bolt	Studio Miramar
Ms.	Kelly	Brown	OpNet
Mr.	E. David	Ellington	NetNoir
Ms.	Sally Jo	Fifer	Bay Area Video Coalition
Ms.	Lesli	Katz	Supervisor
Mr.	Jim	Lynch	CompuMentor
Ms.	Leslie	Mattison	MDG.org
Mr.	Craig	Newmark	Craigslist.org
Mr.	Tyson	Norris	Stockpoint
Ms.	Tania	Schwartz	Mediatrope
Mr.	Ken	Stram	SF Partnership
Ms.	Anna	Szabados-Kocsis	Mission College
Mr.	Michael	Talman	Talman Associates/SkillsNet
Mr.	Ethan	Wilde	Mediatrope

FACULTY AND AUDIENCE			
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Ms.	Dana	Bass	CIS
Mr.	Ryan	Best	Technology Instruction
Mr.	Michael	Calvillo III	CIS
Ms.	Karen	Chapple	UC Berkeley
Dean	Frank	Chong	Student Affairs
Mr.	Kurt	Common	Engineering
Ms.	Glenda	Drew	Graphic Communications
Mr.	Brian	Fergus	Music
Dean	Sandra	Handler	Behavioral Sciences
Mr.	Michael	Hulbert	English
Mr.	Steven	Klot	IDST
Ms.	Lorraine	Leber	Graphic Communications
Mr.	Stephen	Levinson	English
Mr.	Bruce	Lilienthal	Business
Mr.	Jerry	Lum	Architecture
Dean	Robert	Manlove	Science
Mr.	Robert	McAteer	Photography
Ms.	Susan	Meyer	Business
Mr.	John	Odell	Broadcasting
Mr.	Stephan	Ponek	Broadcasting
Ms.	Katharine	Saunders	Math
Mr.	James	Sauve	English
Mr.	Pierre	Thiry	CIS
Mr.	John	Wilk	Theater
Ms.	Nancy	Wolfe	Research, Planning & Grants

APPENDIX B • MULTIMEDIA CERTIFICATES AT CITY COLLEGE

The next four pages outline the current Multimedia Studies certificates available at City College and the course requirements and electives for these programs. The certificate programs are detailed by semester. For a description of the courses see the *CCSF Course Catalogue*.